REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 13-21 and 26-59 are now present in the application. Claims 26, 43, 44, 49, 58 and 59 are independent. Reconsideration of this application is respectfully requested.

Claim Rejections Under 35 U.S.C. § 101

Claims 13-21 and 26-59 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. This rejection is respectfully traversed.

The Examiner in the outstanding Office Action has correctly acknowledged that the disclosed invention has a practical application in the technological arts. However, the Examiner alleged "the claimed process, a series of steps to be performed by a computer, amounts to a manipulation of an abstract idea without a claimed limitation to a practical application" (see Office Action, page 2, lines 12-13.) Applicants respectfully disagree.

In particular, claims 13-21 and 26-59 are directed to at least one practical application within the technological arts, *i.e., audio signal processing* including a method for *manipulating a received sound signal to produce a sound signal* (independent claims 26, 43 and 44 and their dependent claims); a method for *manipulating a sequence of digitized sound signal frames of a sound signal* (independent claim 49 and its dependent claims); a *computer-readable medium including a computer program for manipulating a sequence of digitized sound signal frames of a sound signal* (independent claim 58); and *an apparatus for manipulating a sequence of digitized sound signal frames of a sound signal* (independent claim 59).

The Examiner also alleged "claims fail to include limitations of functional descriptive material that can impart functionality when employed as a computer component to yield a useful, tangible and concrete result" (see Office Action, page 2, lines 14-16.) Again, Applicants respectfully disagree.

In particular, all of the claims except for claims 41, 42 and 58 do not recite that either of the steps or elements is employed as a computer component.

With regard to claims 41, 42 and 58, MPEP § 2016.IV.B.1 states:

> Functional descriptive material consists of data structures and computer programs which impart functionality when employed as a computer component.

> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

In claims 13-21 and 26-59, the step/element of, for example, producing an expansion portion to be contiguous with the first sound signal to represent a part of the sound signal clearly imparts the functionality. Therefore, when the computer program as claimed in claims 41, 42 and 58 is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory because they can yield a useful, tangible and concrete result, *i.e.,* manipulating a received sound signal to produce a sound signal.

The Examiner provided some examples of claimed statutory process falling within the safe harbors of MPEP § 2016.IV.B.2, (Manipulation of Data Representing Physical Objects or Activities (Pre-Computer Process Activity)), where the data comprises signals corresponding to physical objects or activities external to the computer system, and where the process causes a *physical transformation of the signals which are intangible representations of the physical*

objects or activities. Applicants respectfully submit that claims 13-21 and 26-59 indeed include the physical transformation of the signals which are intangible representations of the physical objects or activities, and therefore fall within the safe harbors as statutory processes.

In particular, in claims 13-21 and 26-59, the received sound signal is an intangible representation of the physical objects or activities, *i.e.,* the sound/audio. The physical transformation occurs when the received sound signal is received and an expansion portion of the sound signal is produced. This process has real world value in enabling a continuous play back of signal samples at a receiver end when receiving a digitized sound signal from a packet switched network that loses some packets. Therefore, a continuous flow of signal samples can be played back without interruption due to the lost packets.

Since claims 13-21 and 26-59 are directed to at least one practical application within the technological arts and fall within the safe harbors as specified in the MPEP, it is believed that claims 13-21 and 26-59 are directed to statutory subject matter. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 101 are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 20 and 26-59 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shlomot et al., U.S. Patent No. 5,699,481 (hereinafter "Shlomot"), in view of Shepard, U.S. Patent No. 5,943,347 (hereinafter "Shepard"), and further in view of Henley et al., U.S. Patent No. 5,526,353 (hereinafter "Henley"). Claims 13-19 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shlomot in view of Shepard and Henley, and further in view

of Kubin, "Time Scaled Modification of Speech Based on a Non-linear Oscillator Model" (hereinafter "Kubin"). These rejections are respectfully traversed.

Complete discussions of the Examiner's rejections are set forth in the Office Action, and are not being repeated here.

Independent claim 26 recites "producing an expanded portion after the determining step, wherein:...the expanded portion corresponding to a different amount of the received sound signal than either the first or second received frame, and the first signal frame and the expanded portion have different time lengths in the sound signal".

Independent claim 43 recites "producing a first expanded portion after the first-listed determining step, wherein:... the first expanded portion has a different size than either the first or second received frames" and "producing a second expanded portion after the second-listed determining step, wherein:... the second expanded portion has a different size than either the third or fourth received frames, and the first and third signal frames have a frame size that is different from a size of the first expanded portion".

Independent claim 44 recites "producing an expanded portion after the determining step, wherein:... the expanded portion has a size that is different than a frame size of the first signal frame".

Independent claim 49 recites "producing an expanded frame portion to be contiguous with the first sound signal frame, wherein the expanded frame portion represents a part of the sound signal that is different from the part represented by the first signal frame, and wherein the time length of the expanded frame portion in the sound signal is different from the time length of first sound signal frame, and wherein a following frame decoded from the packet data received

from the packet switched network is provided to be contiguous with the expanded frame portion."

Independent claim 58 recites "the computer program causing a receiver unit to... produce an expanded frame portion to be contiguous with the first sound signal frame, wherein the expanded frame portion represents a part of the sound signal that is different from the part represented by the first signal frame, and wherein the time length of the expanded frame portion in the sound signal is different from the time length of first sound signal frame, and wherein a following frame decoded from the packet data received from the packet switched network is provided to be contiguous with the expanded frame portion."

Independent claim 59 recites "a processor unit for executing a computer program causing the apparatus to... produce an expanded frame portion to be contiguous with the first sound signal frame, wherein the expanded frame portion represents a part of the sound signal that is different from the part represented by the first signal frame, and wherein the time length of the expanded frame portion in the sound signal is different from the time length of first sound signal frame, and wherein a following frame decoded from the packet data received from the packet switched network is provided to be contiguous with the expanded frame portion."

Applicants respectfully submit that the above recitations as set forth in independent claims 26, 43, 44, 49, 58 and 59 are not disclosed or suggested by the references relied on by the Examiner.

The Examiner in the "Response to Arguments" section of the outstanding Office Action alleged that Applicants' arguments in the previous Amendment dated January 25, 2006 merely

attack references individually where the rejections are based on combinations of references. Applicants respectfully disagree.

In particular, the Examiner on page 6, lines 18-21 of the outstanding Office Action (and page 3, lines 6-9 of the Office Action of August 25, 2005) stated:

> *Shlomot does not specifically teach* producing an expansion, wherein the first signal frame and the expanded portion are contiguous parts of the sound signal, and the expanded portion corresponds to a different amount of the received sound signal than either the first or second received frames. (Emphasis added.)

In other words, *the Examiner has acknowledged that Shlomot fails to teach* "producing an expanded portion after the determining step, wherein: the first signal frame and the expanded portion are contiguous parts of the sound signal, the expanded portion corresponds to a different amount of the received sound signal than either the first or second received frames" as recited in independent claim 26. Since Shlomot fails to teach the above recitations, it is unnecessary for Applicants to present arguments against Shlomot regarding the above recitations.

The Examiner then turned to rely on Shepard and alleged that Shepard in col. 3, line 35 through col. 5, line 24 teaches the above recitations (see Office Action, page 7, lines 1-10; see also Office Action of August 25, 2005, page 3, lines 10-19). In response to the Examiner's reliance on Shepard's teachings, Applicants presented the arguments on page 17, lines 5-22 and page 18, lines 1-13 of the previous Amendment dated January 25, 2006 as follows:

> *In particular, Shepard discloses that a fundamental pitch period is defined as the lowest common tone for a packet and that multiples of the fundamental pitch period are used as a* <u>substitute</u> *for the data that is missing or erroneous (see col. 3, lines 63-67; col. 4, lines 1-4). Shepard also discloses that if it is determined that an error had occurred, the fundamental pitch*

period is retrieved from the preamble of the previous data packet and the amount of data that is

in error or that was dropped is determined and that a corresponding amount of substitute data is

synthesized by replicating the fundamental pitch period of the previous packet (see col. 4, lines

25-35). In other words, Shepard simply discloses that the amount of data that is in error or that

was dropped would be substituted by the corresponding amount of replicated data by replicating

the fundamental pitch period of the previous packet. Therefore, Shepard discloses that the

replicated data has the same amount/size as the missing signal frame in order to replace the

missing signal frame. Therefore, Shepard fails to teach "the expanded portion corresponding to

a different amount of the received sound signal than either the first or second received frame" as

recited in claim 26 and "the first expanded portion has a different size than either the first or

second received frames" and "the second expanded portion has a different size than either the

third or fourth received frames" as recited in claim 43.

 Although the Examiner in his Advisory Action dated October 21, 2004 alleged that

Shepard's teaching of inserting replicated data by a single period or possibly ten periods would

necessarily require the expanded portion to be of different size than a signal frame (see page 2,

lines 6-8), Applicants respectfully disagree.

 Specifically, Shepard discloses that if the packet were to correspond to a low tone, the

entire data packet might be represented by a single fundamental pitch period because low

frequencies translate into longer periods, and that, on the other hand, if the data packet were to

correspond to a high tone, it might be required to replicate the fundamental pitch period up to

ten times (see col. 4, lines 38-44). Shepard also discloses "the fundamental pitch period is

replicated the requisite number of times in order to "fill in" the data that was dropped or lost

during transmission." (Emphasis added; see col. 4, lines 33-35). In other words, the purpose of replicating the fundamental pitch period to one or multiple of times is to match the length of the lost data packet in order to fill in the lost data packet. Therefore, Shepard does not teach the expanded portion to be of different size than a signal frame as suggested by the Examiner in his Advisory Action dated October 21, 2004.

In other words, Shlomot fails to teach the above recitations as acknowledged by the Examiner, and Shepard fails to teach the above recitations in view of the above arguments. Therefore, the combination of Shlomot and Shepard would also fail to teach the above recitations. In addition, Henley is not relied on by the Examiner to teach the above recitations. If the Examiner takes the position that Henley discloses the above recitations to cure the deficiencies of the combination of Shlomot and Shepard, the Examiner has the initial burden to specify where and how Henley discloses the above recitations in order to establish a *prima facie* case of obviousness.

In addition, the Examiner on page 7, lines 11-12 of the outstanding Office Action (and page 3, lines 20-21 of the Office Action of August 25, 2005) stated:

> **Shlomot and Shepard do not teach** the first signal frame and the
> expanded portion have different time lengths in the sound signal.
> (Emphasis added.)

In other words, *the Examiner has acknowledged that Shlomot and Shepard fail to teach* "the first signal frame and the expanded portion have different time lengths in the sound signal" as recited in independent claim 26. Since *Shlomot and Shepard* fail to teach the above recitation, it is unnecessary to for Applicants to present arguments against Shlomot and Shepard regarding the above recitation.

The Examiner then alleged that Henley in col. 13, line 36 through col. 15, line 46 teaches

the above recitation (see Office Action, page 7, lines 12-22; page 8, lines 1-5; see also Office

Action of August 25, 2005, page 4, lines 21-22; page 4, lines 1-14). In response to the

Examiner's reliance on Henley's teachings, Applicants presented the arguments on page 18, lines

20-21, page 19, lines 1-22, and page 20, lines 1-9 of the previous Amendment dated January 25,

2006 as follows:

In particular, Henley in col. 13, line 36 through col. 15, line 46 merely teaches that the

audio data samples 380 have various sizes and variable transmission and the position identifiers

370 in the data packet would direct each audio data sample 380 into specified absolute positions

of the receiving buffer 510 (see FIG. 5; col. 14, lines 11-19). Henley also discloses that the

audio data sample 380 is thereby synchronized with adjacent audio data samples 380 to

compensate the variable periods of the <u>transmission time</u> (see col. 16, lines 23-29). However,

Henley nowhere teaches any method to fill the gap of the lost audio data samples 380 or any

expanded portion for the missing or erroneous audio data sample 380, and therefore cannot

teach the size of the expanded portion. Therefore, Henley also fails to teach "the first signal

frame and the expanded portion have different time lengths in the sound signal" as recited in

claim 26, "the first and third signal frames have a frame size that is different from a size of the

first expanded portion" as recited in claim 43 and "the expanded portion has a size that is

different than a frame size of the first signal frame" as recited in claim 44.

In fact, Henley discloses that if a received data packet is invalid, <u>the packet is</u>

<u>disregarded</u> and the <u>disassembling process for that packet terminates</u> (see FIG. 7; col. 16, lines

12-16). In other words, the audio data sample 380 in that particular packet is disregarded and

no data would be filled in the corresponding absolute position of the receiving buffer 510.

Therefore, it teaches away from modifying Shlomot and Shepard in view of Henley because

Henley suggests disregarding the invalid packet and terminating the disassembling process for

that packet.

In addition, as mentioned, Henley's position identifiers (PI) 370 in the data packet will

direct each audio data sample 380 into specified absolute positions of the receiving buffer 510

(see FIG. 5, col. 14, lines 17-19). Henley also discloses that the audio data sample 380 is

synchronized with adjacent audio data samples 380 to compensate the variable periods of the

transmission time (see col. 16, lines 23-29). In other words, each audio data sample 380 has its

corresponding absolute (i.e., fixed) position in the receiving buffer 510 and one audio data

sample 380 is immediately followed by a next audio data sample 380. Therefore, there is no

flexible space in the receiving buffer 510 for any expanded portion. In fact, it is unnecessary to

insert the expanded portion following an audio data sample 380 in order to wait for the next,

delayed audio data sample, because Henley states that the variable periods of the transmission

time have been <u>compensated</u> by using the position identifiers 370 to assign the absolute positions

of the audio data samples 380. Accordingly, one skilled in the art would not have the motivation

to modify Shlomot and Shepard in view of Henley because Henley suggests that the delay of the

audio data sample has been compensated.

In other words, the combination of Shlomot and Shepard fails to teach the above

recitation as acknowledged by the Examiner, and Henley fails to teach the above recitation in

view of the above arguments, the combination of Shlomot, Shepard and Henley would also fails

to teach the above recitation. Therefore, Applicants' arguments in the previous Amendment

dated January 25, 2006 did not merely attack references individually as alleged by the Examiner, but indeed argue the deficiencies of the combination of Shlomot, Shepard and Henley.

In addition, Applicants on page 19, lines 18-22 and page 20, lines 1-9 of the previous Amendment dated January 25, 200 also presented the argument that one skilled in the art would not have the motivation to modify Shlomot and Shepard in view of Henley, which clearly argued the impropriety of the combination of Shlomot, Shepard and Henley. However, the outstanding Office Action never responded to the merits of this argument. Accordingly, the outstanding Office Action does not comply with MPEP §707.07(f), which requires that the Examiner respond on the merits to the substance of each of the arguments presented by Applicants traversing rejections of record. This denies Applicants fundamental substantive and procedural process under the Administrative Procedures Act. See in this regard, In re Zurko, 119 S.Ct. 1816, 50 USPQ2d 1930 (1999), and In re Gartside, 53 USPQ2d 1769 (Fed. Cir. 2000). Applicants respectfully submit that this argument was presented in good faith and deserves to be considered and responded to on its merit.

With regard to the independent claims 43, 44, 49, 58 and 59, Applicants respectfully submit that they clearly define over the combinations of Shlomot, Shepard and Henley at least for the same reasons as independent claim 26.

With regard to the Examiner's reliance on Kubin, this reference has only been relied on for its teachings related to the subject matter of dependent claims. Kubin also fails to disclose the above recitations as set forth in independent claims 26, 43, 44, 49, 58 and 59. Accordingly, Kubin fails to cure the deficiencies of Shlomot, Shepard and Henley .

Accordingly, none of the references relied on by the Examiner individually or in combination teach or suggest the limitations of independent claims 26, 43, 44, 49, 58 and 59. Therefore, Applicants respectfully submit that independent claims 26, 43, 44, 49, 58 and 59 clearly define over the teachings of the utilized references.

In addition, claims 13-21, 27-42, 45-48 and 50-57 depend, either directly or indirectly, from independent claims 26, 43 and 49, and are therefore allowable based on their respective dependence from independent claims 26, 43 and 49, which are believed to be allowable.

In view of the above remarks, Applicants respectfully submit that claims 13-21 and 26-59 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

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      If necessary, the Commissioner is hereby authorized in this, concurrent, and future

replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any

additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: July 7, 2006   Respectfully submitted,

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